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ABSTRACT

The effects of inflation on the operations of 10 northeastern colleges and universities and the effect of using current cost accounting are considered. The focus is on adjustments to assets in the plant fund by restating the surplus and deficit calculations of four state and six private institutions. The 10 institutions had plant assets with an original cost of $770 million. Current cost adjustment requires that each category of assets be restated to reflect replacement cost. Using Halstead's price indexes, all plant assets owned in 1961 or purchased during the 1961-1979 period were converted to replacement cost in 1979, with separate conversions for buildings, equipment, and library books. These conversions produced a "restated cost" of $1,521.3 million in 1979 dollars, an increase over the original cost of 97.6 percent. Using current cost, depreciation was $591.6 million, or almost twice as large. The effect of this large amount of depreciation on the flow of resources is addressed. For six independent colleges, deficits were estimated at about $370,000 per year, which would be serious when accumulated over a 10- to 20-year period. It is concluded that colleges need to identify a substantial, additional source of income in order to balance the total drain on institutional resources. (SW)

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Financial Results During Periods of Inflation

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by JAMES W. THOMPSON and RICHARD E. ANDERSON

Inflation bends our economic yardstick and pushes our financial reports from fact to fiction. The B.F. Goodrich Company reported earning $82.6 million for the year 1979; when the effects of inflation on these "profits" are taken into account, the company earned only $300,000 on a current cost basis. The primary reason for the large illusory surplus was that the actual dollars earned were inadequate to replace aging production equipment and plants. Financial analysts have long recognized the problems that inflation brings to financial reporting. These professionals continue to pursue a number of alternative analytic schemes to restate corporate earnings. This paper reviews the effect that one of the most common alternatives would have on college and university financial reporting.

Proposals to Deal with Inflation

Inflation distorts the meaning of financial reports in several ways. A firm that holds a large amount of cash or receivables loses economic ground in an inflationary economy. Conversely, a company that is heavily in debt and holds inflation-proof assets gains with inflation. The most common and complicated problem is that rising prices change the future capital needs of the organization. Put another way, during periods of inflation, depreciation allowances are likely to be inadequate to provide for replacement if based on original cost. The issue is complicated because the changes in the cost of equipment are not uniform. Recognizing these problems, the Financial Accounting Standards Board (FASB) has issued a series of requirements and recommendations (Statement of Financial Accounting Standards No. 33) dealing with reporting the results of inflation. These specifically apply to organizations operating for profit.

The results of these requirements are separated into two categories of inflation adjustments. They are termed "current cost" and "constant dollar" accounting. Current cost (which is closely analogous to replacement cost) bases its calculations on the amount it would cost to replace an asset at current prices. Constant dollar accounting determines the fair depreciation allowance by annually adjusting the original cost of an asset by the change in the Consumer Price Index (CPI). Clearly, the effects of these two methods are not the same; both have advantages and disadvantages. Current cost accounting is asset-specific and has the potential for being more accurate. It is also more complicated and can be quite subjective, especially when applied to equipment. Not only does the cost of equipment change but so do the requirements for and capabilities of equipment. Constant dollar accounting, although easier to apply, does not take into account the various effects of inflation on different assets. For example, the costs of building construction may have tripled over a ten-year period, while the price of electronics equipment remains stable.

As one would expect, the application of these techniques to the reported results of business organizations can reveal wide and far-reaching disparities. For example, employing traditional "historical cost" accounting produced a $118.5 million profit at Control Data in 1979. However, converted to a constant-dollar basis, the profit decreased to $1.7 million and, on a current cost basis, the profit would have been $114.7 million.

In summary, corporations in the United States are attempting to fill an information void. Arriving at a decision on the most accurate reflection of reality is complex. For this reason, FASB has indicated that tests of the data produced must be performed on an ongoing basis and refinements in the rules for inflation accounting made as they are required. The point is, however, that the accounting community is aware of the inadequacies of traditional accounting and is looking for better methods.

Obviously, the effects of inflation are not confined to the profit-seeking sector and the techniques developed there can be applied at nonprofits as well. This article analyzes the effect of using current cost accounting at colleges and universities.

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Inflation at Ten Colleges And Universities

The research is limited in that adjustments are made only to assets in the plant fund. Other funds could have been reviewed, but the plant fund is certainly the most important for this purpose. Its assets are typically many times larger than those of other funds. Moreover, colleges and universities do not systematically depreciate their physical plant and an accounting for the replacement of plant thus becomes particularly important. Many analysts have estimated the effects that traditional depreciation schemes could have on college reporting. This study goes a step further and adopts the current cost techniques to restate the surplus and deficit calculations of ten colleges and universities.

The colleges and universities selected for study included three liberal arts colleges, three technical colleges, three universities, and one community college. Four were publicly controlled and the remaining six independent. All were in the Northeast. Since the procedures are complex, it was necessary to visit each institution and obtain data on which to base the calculations. The chief financial officer at each institution was consulted as data were collected.

Current Cost Adjustment to Balance Sheet

The ten colleges and universities had plant assets with an original cost of $770 million. Current cost adjustment requires that each category of assets be restated to reflect replacement cost. D. Kent Halstead has published price indexes for colleges and universities since 1975. The figures go back to 1961 and consider specifically plant construction, equipment, and library books as well as salaries, employee benefits, and other costs not necessary for this analysis.

All plant assets owned in 1961 or purchased during the period 1961-1979 are converted to replacement cost in 1979. The conversions are applied separately for buildings, equipment, and library books. The year 1961 is the base because Halstead's indexes do not go beyond that year. Therefore, all assets purchased prior to this date are included as if they were purchased in 1961. This assumption does not materially distort the results, since over 75 percent of the assets purchased were bought after 1961. Moreover, inflation rates prior to 1961 were low by current standards.

These conversions produced a "restated cost" of $1,521.3 million in 1979 dollars—an increase over original cost of 97.6 percent. The greatest changes were in buildings, with a 105.9 percent increase, and library books, with an increase of 101.2 percent. The smallest conversion was in the category of equipment (70.7 percent). Equipment conversions were probably smaller because colleges and universities replace these assets more frequently. (See Exhibit 1.)

Asset lives for each category of asset were assumed to be substantially the same as those used in the profit sector: 50 years for buildings, 5 years for equipment, and 5 years for books. Total depreciation for all assets was $330.5 million, or 39 percent of original cost when based on original cost. *Using current cost, depreciation was $591.6 million, or almost twice as large.*

Effects on Resource Flows

The next and most important issue is the effect of this large amount of depreciation on the flow of resources. The place to start this analysis is the income and expense statement of the current fund, but absolute reconciliation is not easy. First, many colleges transfer funds from the current fund to the plant fund. These transfers need to be eliminated as expenses of the current fund *when they are for principal repayment or renewal and replacement of plant.* When transferred for these purposes, they can be considered as depreciation, so the estimates of depreciation would be doubled. Transfers for *interest payments* are an expense and should be counted as such. Unfortunately, the separate transfers could not be broken down. All transfers were eliminated as costs; to the extent that some of these transfers were for

Exhibit 1: Summary of Research Findings for All Ten Institutions

	Total Original Cost	Restated at 6/30/79	Increase	
			Amount	Percentage
Assets				
Buildings	$537,692,133	$1,106,963,471	$569,271,338	105.9%
Land	20,394,561	40,127,734	19,733,173	96.8
Land improvements	32,568,184	61,489,413	28,921,229	88.8
Equipment	158,489,819	270,604,151	112,114,332	70.7
Library books	20,921,609	42,096,030	21,174,421	101.2
Total assets	$770,066,306	$1,521,280,799	$751,214,493	97.6
Accumulated depreciation				
Buildings	$114,146,916	$ 269,465,536	$155,318,620	136.1%
Land improvements	33,667,959	61,594,095	27,926,136	82.9
Equipment	135,624,902	226,351,622	90,726,720	66.9
Library books	17,090,127	34,167,906	17,077,779	99.9
Total accumulated depreciation	$300,529,904	$ 591,579,159	$291,049,255	96.9
Depreciation vs. total depreciable assets	39.0%	38.9%		

Exhibit 2: Average Annual Current Fund Income and Expenses at Six Independent Colleges for 1961-1979, with Adjustments

Income	$4,389,000
Less: Expenses	—4,146,000
Average annual surplus as reported	243,000
Plus: Net transfers out of current fund	+ 211,000
Surplus plus transfers	454,000
Less: Depreciation based on original cost	— 606,000
Deficit	(152,000)
Less: Depreciation based on current cost	— 452,000
Deficit	(604,000)
Plus: Additions to the plant fund	+ 234,000
Average annual deficit with adjustments	$ (370,000)

interest expense, our analysis underestimates the total drain on college resources.

A second problem is deferred maintenance. The useful lives that are assumed are based on regular and adequate maintenance. *If colleges are deferring maintenance, depreciation costs will be larger.*

A third problem for determining whether incoming resources match outflows stems from the fact that some funds go directly into the plant fund. It would be misleading to assert that college resources are being drained because of the depreciation of plant if donors are putting money directly into the plant fund. Accordingly, the additions over the 19-year period are included as income. This decision has distracting consequences. If one views the college as an equity-producing organization, counting additions to the plant fund as income is appropriate. However, colleges and universities are service organizations. Trustees are charged with the delivery of services, and the financial statements should assist them in their charge. Suppose that the purpose of the additions to the plant fund were to generate extra capacity—not an unreasonable assumption for the time period under consideration. Such additions would undeniably represent increases in equity. *They would not, however, reduce the resource drain as estimated by depreciation of current plant and equipment.* In this analysis all additions to the plant fund are included as income; thus, once again there is an underestimating of resource shortfalls.

Finally, public institutions are eliminated from this part of the analysis because they are not financially independent. They are required to balance their budgets but not necessarily provide for the replacement of capital items. State officials may or may not have an adequate long-term budget. The authors believe that they do not, but there is no sure way of knowing.

This analysis is limited to the resource flows at six independent colleges. There are three reasons why the estimates of resource shortfalls may be too low: (1) interest expenses were not included, (2) the possibility that deferred maintenance has reduced asset lives was not considered, and (3) all additions to the plant fund, regardless of purpose, were considered to offset depreciation.

Exhibit 2 details the average operating results over 19 years for the six independent colleges. Average income was $4,389,000 and the average surplus reported was $243,000. After adding back transfers, the surplus is $454,000. Depreciation based on original cost is $606,000, yielding a deficit of $152,000. Current cost accounting applies extra depreciation expenses of $452,000 and a deficit of $604,000. Additions to the plant fund reduce the average deficit to $370,000, or 8.4 percent of income.

Summary and Recommendations

Colleges and universities must consider the effects of inflation on their operations. As in the corporate sphere, the ability to deal with inflation is a requisite for financial stability. This paper suggests that a substantial, additional source of income must be identified in order to balance the total drain on institutional resources. The estimated "deficits" of approximately $370,000 per year at the six independent colleges could prove to be devastating when accumulated over a 10- to 20-year period. However, the methods of this analysis may even understate the potential problem.

Educational leaders should understand that equipment and buildings wear out and that replacements will be considerably more expensive than the capital items now in use. The longer one waits to face the issues, the more painful the solutions will become. ♦

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